

WHAT IS CLAIMED IS:

## 1. A transmission apparatus comprising:

a frame configuration determiner that determines a modulation system from among a plurality of modulation systems based on a communication situation;

a first symbol generator that modulates a digital transmission signal according to the modulation system determined by the frame configuration determiner and that generates a first symbol, the first symbol comprising a first quadrature baseband signal; and

a second symbol generator that modulates the digital transmission signal according to a predetermined modulation system and that generates a second symbol, the second symbol comprising a second quadrature baseband signal.

## 2. A transmission apparatus comprising:

a frame configuration determiner that determines a modulation system from among a plurality of modulation systems based on a communication situation;

a first symbol generator that modulates a digital transmission signal according to the modulation system determined by the frame configuration determiner and that generates a first symbol, the first symbol comprising a first quadrature baseband signal; and

a second symbol generator that modulates a known digital transmission signal between a transmitting side and a receiving side and that generates a second symbol, the second symbol comprising a second quadrature baseband signal.

3. The transmission apparatus according to claim 1, wherein the second symbol generator generates the second symbol by BPSK modulation.

4. The transmission apparatus according to claim 1, wherein the frame configuration

determiner determines an interval of inserting the second symbol based on the communication situation.

5. A digital radio communication method comprising:

determining a modulation system from among a plurality of modulation systems based on a communication situation;

modulating a digital transmission signal according to the determined modulation system and generating a first symbol comprising a first quadrature baseband signal; and

modulating the digital transmission signal according to a predetermined modulation system and generating a second symbol comprising a second quadrature baseband signal.

6. A digital radio communication method comprising:

determining a modulation system from among a plurality of modulation systems based on a communication situation;

modulating a digital transmission signal according to the determined modulation system and generating a first symbol comprising a first quadrature baseband signal;

modulating a known digital transmission signal between a transmitting side and a receiving side and generating a second symbol comprising a second quadrature baseband signal.

7. The digital radio communication method according to claim 5, the second symbol being generated by BPSK modulation.

8. The digital radio communication method according to claim 5, further comprising determining an interval of inserting the second symbol based on the communication situation.

9. The transmission apparatus according to claim 1, wherein the frame configuration determiner initially determines the communication situation based on at least one of transmission

path information and data transmission speed information.

10. The transmission apparatus according to claim 1, wherein the frame configuration determiner initially determines the communication situation based on at least a quality of a received signal.

11. The digital radio communication method claim 5, further comprising determining the communication situation based on at least one of transmission path information and data transmission speed information.

12. The digital radio communication method claim 5, further comprising determining the communication situation based on at least a quality of a received signal.